

REMARKS

Claims 1, 3-10, 16-26, 29-31, 41, 43-47, 49, 50, and 53 remain pending in the instant application. All claims presently stand rejected. Claims 21 and 46 are amended herein. Claims 32-34 are hereby cancelled without prejudice. Entry of this amendment and reconsideration of the pending claims are respectfully requested.

Claim Rejections – 35 U.S.C. § 101

Claims 32-34 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

While Applicants do not agree with the basis for this rejection, in order to advance prosecution in a timely manner, these claims have been cancelled without prejudice. Consequently, this rejection is now moot.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 3-10, 16-20, 32-34, 41, 43-46, 50 and 53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goebel (US 6,289,505) in view of Schmidt (US 2003/0051234). Applicants traverse the instant rejections.

Claims 21, 22, 25, 26, 29-31, 46, 47, and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goebel in view of Shupak (US 6,874,410).

Claims 23 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goebel in view of Shupak and alleged Applicant's Admitted Prior Art (AAPA). Applicants traverse the instant rejections.

“To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. All words in a claim must be considered in judging the patentability of that claim against the prior art.” M.P.E.P. § 2143.03.

Independent Claims 1, 18, 41, and 50

Independent claim 1 recites, in pertinent part,

**executing the intermediate code based on external execution input;
generating data that indicates performance of the intermediate code
when the intermediate code is executed with the external execution
input; and
producing machine code based on the data and the intermediate code.**

Applicants respectfully submit that the combination of Goebel and Schmidt fails to disclose, teach, or suggest executing intermediate code based on external execution input to generate data indicating performance of the intermediate code. .

The Office Action acknowledges “Goebel does not explicitly disclose executing an intermediate code based on external execution unit.” *Office Action* mailed 01/21/09, page 7. Consequently, the Office Action cites Schmidt as disclosing this missing element. However, Schmidt also fails to teach or suggest executing intermediate code based on external execution input. To be sure, Schmidt recites,

Back-end compiler 120 also includes a profiler 124 that is used to obtain profile data 126 **when the machine code 125 is run with a set of sample inputs**. As used herein, the term “sample inputs” means inputs that **simulate real-world execution of the machine code** in its intended environment. (*Schmidt*, para. [0030], emphasis added)

Profile data is then gathered from executing the machine code from a set of sample inputs. (*Schmidt*, para. [0039], emphasis added)

Once the profiler 624 has **generated profile data 626 for the machine code** that is output by the machine code emitter 622, the profile data 626 may be examined to determine how often each target method that corresponds to a virtual method call was actually invoked **during the sample execution of the machine code**. (*Schmidt*, para. [0042], emphasis added)

Next, a user runs the instrumented program (i.e., **machine code** generated on the first pass of the back-end compiler) on sample inputs to gather profile data (step 730). (*Schmidt*, para. [0044], emphasis added)

Accordingly, these portions of Schmidt clearly disclose that only machine code 125 or 625 is executed based on sample inputs. Referring to FIG. 6, Schmidt clearly differentiates between source code 105, intermediate representation 615, and machine

code 625. Schmidt only ever discloses that machine code 125 (FIG. 1) or machine code 625 (FIG. 6) is executed with sample inputs to generate profile data 126 or 626. As such, Schmidt fails to teach or suggest executing intermediate representation 115 or 615 using external execution input to generate data indicating performance of the intermediate representation code.

In the "Response to Arguments" section of the Office Action, the Examiner cites para. [0057] of Schmidt which indicates that front-end compiler 610 may reside on a first computer system and output the intermediate representation 615 to a second computer system, while back-end compiler 620 may reside on a third computer system and retrieve the intermediate representation 615 from the third computer system and output the machine code 625 to a fourth computer system. However, distributing the front-end compiler 610 and back-end compiler 620 on separate computer systems and storing their output to yet other computer system still does not teach or suggest executing the intermediate code based on external execution input to generate data indicating performance of the intermediate code. Paragraph [0057] still does not disclose executing intermediate representation 615 to generate data indicating performance. Schmidt only discloses that machine code 625 is executed to generate profile data 626. The mere fact that back-end compiler 620 is stored on a separate or external computer system from the computer system storing front-end compiler 610 does not teach or suggest executing intermediate representation 615 to generate data indicating performance of the intermediate representation 615.

Consequently, the combination of Goebel and Schmidt fails to teach or suggest all elements of claim 1, as required under M.P.E.P. § 2143.03. Independent claims 18, 41, and 50 include similar nonobvious elements as independent claim 1. Accordingly, Applicants request that the instant §103(a) rejections of claims 1, 18, 41, and 50 be withdrawn.

Independent Claims 21 and 46

Amended independent claim 21 recites, in pertinent part,

iteratively:

determining whether to produce further modified intermediate code and further modified machine code based upon whether a predetermined performance gain has been achieved in the modified machine code over the machine code; and, if the further modified intermediate code and the further modified machine code are to be produced:
providing the modified machine code to the profiler;
receiving another data file from the profiler; and
producing the further modified intermediate code and the further modified machine code based upon the source code and the another data file,
wherein the predetermined performance gain includes a percentage performance improvement based on execution speed.

Applicants respectfully submit that the combination of Goebel and Shupak fails to disclose, teach, or suggest determining whether to perform an additional iteration to produce further modified intermediate and machine code based upon whether the previous iteration achieved a predetermined performance gain as a percentage performance improvement based on execution speed.

The Office Action acknowledges, “Goebel does not explicitly disclose iteratively: determining whether to produce further modified intermediate and further modified machine code based upon whether a predetermined gain has been achieved in the modified code over the machine code.” *Office Action* mailed 01/21/09, page 16. Consequently, the Office Action cites FIG. 7, col. 10, lines 61-67, and col. 11, lines 1-5 of Shupak as teaching this missing element. *Id at pg 17*. However, the cited portions of Shupak in fact state,

Method 700 includes receiving or reading an annotation debug information in an executable computer program 710. In one embodiment, the annotation debug information was generated from an annotation function call in the source code that the executable computer program was compiled from. In another embodiment, the annotation debug information includes information. (Shupak, col. 10, lines 61-67)

Subsequently, method 700 includes modifying the executable program in accordance with the annotation debug information 720. In another embodiment, method 700 includes modifying the executable program to

perform an action in accordance with the information in the annotation debug information. (Shupak, col. 11, lines 1-5)

These portions of Shupak fail to make any reference to a “predetermined performance gain.” These portions of Shupak also fail to teach or suggest **using a predetermined performance gain from a previous iteration to determine whether or not to perform an additional iteration** to produce further modified intermediate code and further modified machine code.

In the “Response to Arguments” section of the Office Action, the Examiner states that the phrase “predetermined performance gain” is interpreted broadly. However, claim 21 has been amended to define the predetermined performance gain to include a percentage performance improvement based on execution speed. Shupak does not teach or suggest determining whether to perform an additional iteration based upon whether the previous iteration achieved a predetermined performance gain as a **percentage performance improvement based on execution speed**.

Consequently, the combination of Goebel and Shupak fails to teach or suggest all elements of claim 21, as required under M.P.E.P. § 2143.03. Independent claim 46 includes similar nonobvious elements as independent claim 21. Accordingly, Applicants request that the instant §103(a) rejections of claims 21 and 46 be withdrawn.

Dependent Claims

The dependent claims are nonobvious over the prior art of record for at least the same reasons as discussed above in connection with their respective independent claims, in addition to adding further limitations of their own. Accordingly, Applicants respectfully request that the instant § 103 rejections of the dependent claims be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is believed that the applicable rejections have been overcome and all claims remaining in the application are presently in condition for allowance. Accordingly, favorable consideration and a Notice of Allowance are earnestly solicited. The Examiner is invited to telephone the undersigned representative at (206) 292-8600 if the Examiner believes that an interview might be useful for any reason.

CHARGE DEPOSIT ACCOUNT

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a). Any fees required therefore are hereby authorized to be charged to Deposit Account No. 02-2666. Please credit any overpayment to the same deposit account.

Respectfully submitted,

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